

Helminth Fauna of Bats in Japan XLVIII

(1) (2)
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ABSTRACT: Two known species of hymenolepidid cestode were obtained through the examination of six bats belonging to two species of two genera, collected at Tateishi, Tsuruga-shi, Fukui Prefecture on August 25, 1993 and Norikura-kôgen, Minamiazumimura, Nagano Prefecture on August 28, 1993, respectively. *Vampirolepis balsaci* is recorded from Japan for the first time and *V. multihamata* is first detected in the parts of Japan, from the Kanto District westward.

Introduction

As a continuation of the serial studies of the cestode parasites of the Japanese bats, here are summarized the results obtained from the bats collected at Fukui and Nagano Prefectures.

Materials and Methods

Four specimens of the particolored bats, *Vespertilio superans superans* Thomas were captured on a tiny rocky island located at Tateishi, Tsuruga-shi, Fukui Prefecture on August 25, 1993. On the other hand, two specimens of the Japanese northern bat, *Eptesicus nilssoni parvus* Kishida were captured in the garret of a pension located at Norikura-kôgen, Nagano Prefecture on August 28, 1993 (Fig. 1). The bats were autopsied immediately after capture and their intestinal tracts were fixed in Carnoy's fluid and brought to the laboratory. The methods used are in the previous paper (Sawada and Harada, 1984). Measurements are given in millimeters.

Results

Vampirolepis Spassky, 1954
Vampirolepis multihamata Sawada, 1967
(Figs. 2-7)

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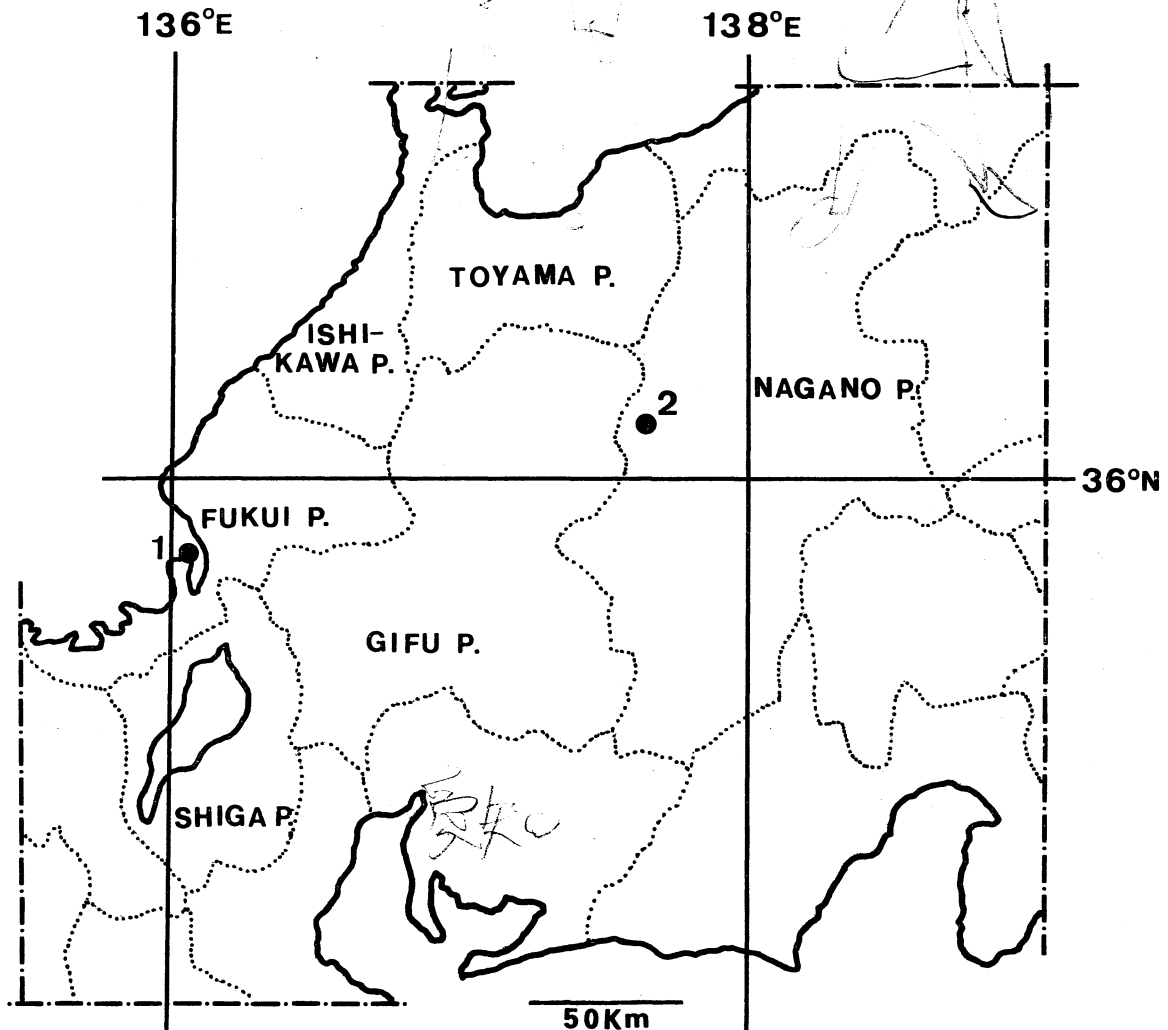


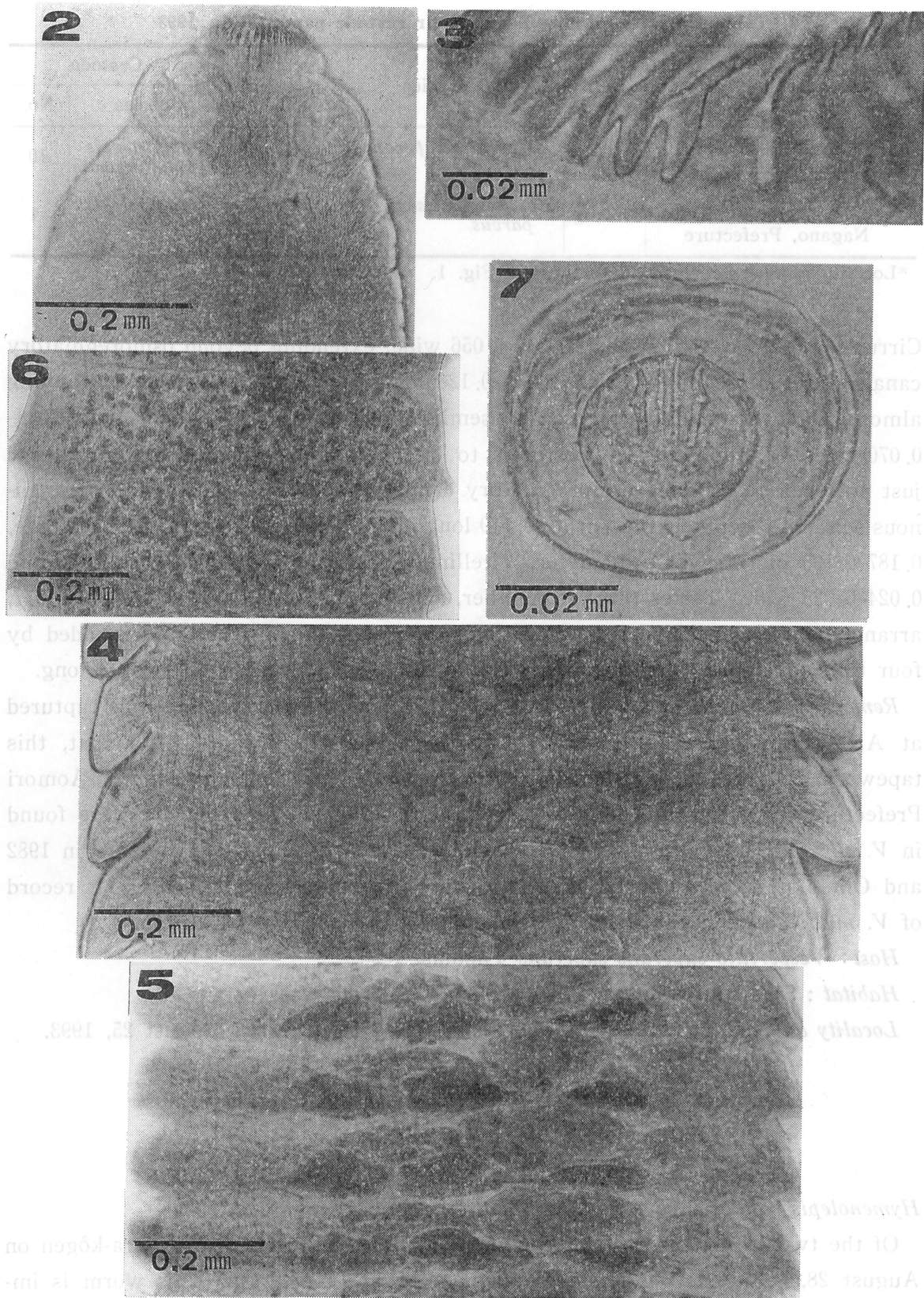
Fig. 1. A map showing the collection sites of bats. For the locality number, see Table 1.

Vampirolepis multihamata Sawada, 1967, pp. 62-63, figs. 1-4.

On August 25, 1993, four specimens of *Vespertilio superans superans* were captured at Tateishi, Turuga-shi. On dissection, one of them harbored ten specimens of this cestode (Table 1).

Description : Medium-sized hymenolepidid; worm length 19-23 and maximum width 0.9-1.1. Segments wider than long. Scolex 0.196-0.210 long and 0.294-0.315 wide, not set off from neck region. Rostellum mushroom-shaped, 0.196-0.210 long and 0.294-0.315 wide, armed with a single row of 46-49 spanner-shaped hooks measuring 0.035 long. Hook handle long and attenuate; guard slightly round at its end, shorter than blade; blade sharp at its end. Rostellar sac pyriform, 0.210 long and 0.126-0.147 wide, extending to posterior margins of suckers. Sucker discoid, 0.091 long and 0.070-0.077 wide. Neck 0.64-0.78 long and 0.34-0.42 wide.

Genital pores unilateral, located a little anterior to middle of segment margins.



Figs. 2-7. *Vampirolepis multihamata*

2: Scolex, 3: Rostellar hooks, 4: Mature segments observed under interference contrast light microscope. 5: Mature segment stained with alcohol-hydrochloride-carmin. 6: Gravid segment harboring a number of eggs, 7: Egg.

Table 1. Bats examined, and their cestode parasites in 1993

Locality	Date	Bat species	Incidence (No. infected/ No. examined)	Cestode	
				Species	No.
1) * Tateishi, Tsuruga-shi, Fukui Prefecture	25 Aug.	<i>Vespertilio superans superans</i>	1/4	<i>Vampirolepis multihamata</i>	10
2) Norikura-kôgen, Minamiazumi-mura, Nagano, Prefecture	28 Aug.	<i>Eptesicus nilssoni parvus</i>	1/2	<i>Vampirolepis balsaci</i>	1

*Locality numbers correspond to those of Fig. 1.

Cirrus sac 0.196-0.224 long and 0.049-0.056 wide, extending beyond osmoregulatory canals. Internal seminal vesicle 0.119-0.126 long and 0.042-0.049 wide, occupying almost whole of cirrus sac. External seminal vesicle 0.084-0.091 long and 0.063-0.070 wide. Vagina initially posterior to cirrus sac, passing beneath cirrus sac just posterior to crossing osmoregulatory canals, gradually extending into voluminous seminal receptacle measuring 0.119 long and 0.077-0.084 wide. Ovary bilobate, 0.187-0.193 in transverse diameter. Vitelline gland compact, 0.036-0.041 long and 0.024-0.028 wide. Testes three in number, subspherical, 0.091-0.098 by 0.070-0.077, arranged in a transverse row. Eggs subspherical, 0.070 by 0.056, surrounded by four thin envelopes. Onchospheres 0.032 by 0.028; embryonic hooks 0.014 long.

Remarks : *V. multihamata* was first recorded from *V. superans superans* captured at Aizuwakamatsu, Fukushima Prefecture in 1967 by Sawada. After that, this tapeworm was described from *V. superans superans* at Tenmadate-mura, Aomori Prefecture (Sawada, 1980 and 1984). On the other hand, no tapeworms were found in *V. superans superans* captured at Kudoyama-cho, Wakayama Prefecture in 1982 and Ohtsukue-jima, Fukuoka Prefecture in 1984 and 1991. This is the first record of *V. multihamata* from *V. superans superans* of Central Honshu, Japan.

Host : *Vespertilio superans superans* Thomas, 1898.

Habitat : Small intestine.

Locality and date : Tateishi, Tsuruga-shi, Fukui Prefecture; August 25, 1993.

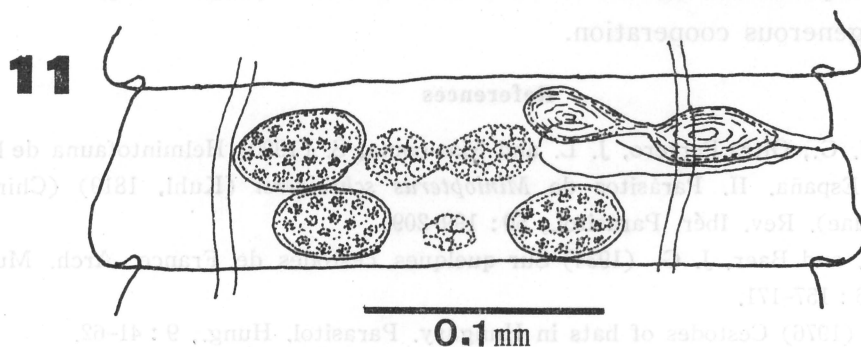
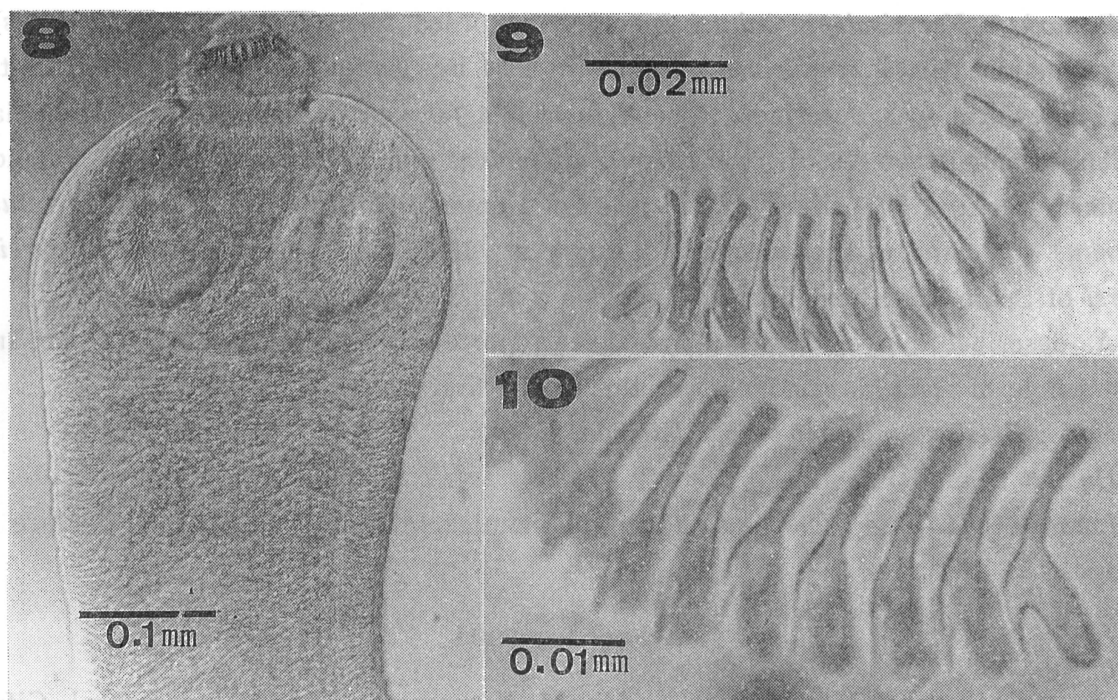
Vampirolepis balsaci (Joyeux et Baer, 1934)

(Figs. 8-11)

Hymenolepis balsaci Joyeux et Baer, 1934, p. 160, fig. 2.

Of the two specimens of *Eptesicus nilssoni parvus* captured at Norikura-kôgen on August 28, 1993, one contained a specimen of this tapeworm. This worm is immature and not gravid.

Description : Small-sized hymenolepidid, worm length 2.9 and maximum width 0.3. Metamerism distinct, craspedote, segment margin slightly serrate. Scolex



Figs. 8-11. 8 : Scolex. 9 and 10 : Rostellar hooks. 11 : Mature segment drawn from projected photographic negative.

claviform, 0.196 long and 0.266 wide, not set off from neck. Rostellum 0.126 long and 0.084 wide, armed with a single row of 30 hooks measuring 0.021 long. Hook handle long, guard prominent, round at its end, longer than blade, blade attenuate, sharp at its end. Rostellar sac elongate, 0.168 long and 0.077 wide, extending beyond posterior margins of suckers. Suckers discoid, 0.084 in diameter.

Genital pores unilateral, located a little anterior to middle of segment margins. Cirrus sac 0.118-0.142 long and 0.036-0.046 wide, extending beyond osmoregulatory canals. Internal seminal vesicle 0.094-0.103 long and 0.034-0.042 wide, occupying almost whole of cirrus sac. External seminal vesicle 0.064-0.078 long and 0.032-0.048 wide. Seminal receptacle slightly developed. Ovary bilobate, 0.124-0.139 in transverse diameter. Vitelline gland compact, 0.068-0.072 long and 0.042-0.056 wide. Testes three in number, subspherical, 0.062-0.074 by 0.048-0.056, arranged in a form of triangle, one poral and two aporal. Gravid segments undeveloped.

Remarks : *Vampirolepis balsaci* was first recorded from *Eptesicus* (= *Eptesicus*) *serotinus* and *Myotis bechsteini* of France in 1934 by Joyeux and Baer. After that, the tapeworm was described from *Rhinolophus ferrumequinum* of Czechoslovakia (Tenora and Baruš, 1960), from *Myotis mystacinus* and *Eptesicus nilssoni* of Poland (Zdzitowiecki, 1970), from *Myotis myotis* of Hungary (Murai, 1976), from *Plecotus auritus* of Poland (Zdzitowiecki and Ruprecht, 1982) and from *Miniopterus shreibersi* of Spain (Esteban, Ferrero and Mas-coma, 1990).

As described above, *V. balsaci* have been reported only from the bat of Europe. In the whole of Asia, Japan included, this is the first record of *V. balsaci*.

Host : *Eptesicus nilssoni parvus* Kishida, 1932.

Habitat : Small intestine.

Locality and date : Norikura-kôgen, Minamiazumi-mura, Nagano Prefecture ; August 28, 1993.

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